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# BC182, BC182A, BC182B

## Amplifier Transistors

### NPN Silicon

#### Features

- Pb-Free Packages are Available\*

#### MAXIMUM RATINGS

Rating	Symbol	BC182	Unit
Collector–Emitter Voltage	$V_{CEO}$	50	Vdc
Collector–Base Voltage	$V_{CBO}$	60	Vdc
Emitter–Base Voltage	$V_{EBO}$	6.0	Vdc
Collector Current – Continuous	$I_C$	100	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

#### THERMAL CHARACTERISTICS

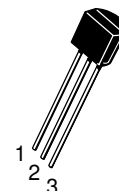
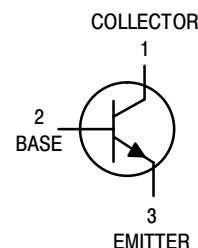
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



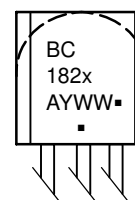
ON Semiconductor®

<http://onsemi.com>



TO-92  
CASE 29  
STYLE 17

#### MARKING DIAGRAM



BC182x = Device Code  
x = A or B  
A = Assembly Location  
Y = Year  
WW = Work Week  
■ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping†
BC182	TO-92	5000 Units / Box
BC182G	TO-92 (Pb-Free)	5000 Units / Box
BC182A	TO-92	5000 Units / Box
BC182AG	TO-92 (Pb-Free)	5000 Units / Box
BC182B	TO-92	5000 Units / Box
BC182BG	TO-92 (Pb-Free)	5000 Units / Box
BC182BRL1	TO-92	2000 / Tape & Reel
BC182BRL1G	TO-92 (Pb-Free)	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# BC182, BC182A, BC182B

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	–	–	V
Collector–Base Breakdown Voltage (I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	60	–	–	V
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	6.0	–	–	V
Collector Cutoff Current (V <sub>CB</sub> = 50 V, V <sub>BE</sub> = 0)	I <sub>CBO</sub>	–	0.2	15	nA
Emitter–Base Leakage Current (V <sub>EB</sub> = 4.0 V, I <sub>C</sub> = 0)	I <sub>EBO</sub>	–	–	15	nA
<b>ON CHARACTERISTICS</b>					
DC Current Gain (I <sub>C</sub> = 10 μA, V <sub>CE</sub> = 5.0 V)	h <sub>FE</sub>	40	–	–	–
(I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V)		120	–	500	
(I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V)		80	–	–	
		120	–	500	
Collector–Emitter On Voltage (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA)	V <sub>CE(sat)</sub>	–	0.07	0.25	V
(I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA) (Note 1)		–	0.2	0.6	
Base–Emitter Saturation Voltage (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA) (Note 1)	V <sub>BE(sat)</sub>	–	–	1.2	V
Base–Emitter On Voltage (I <sub>C</sub> = 100 μA, V <sub>CE</sub> = 5.0 V)	V <sub>BE(on)</sub>	–	0.5	–	V
(I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V)		0.55	0.62	0.7	
(I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V) (Note 1)		–	0.83	–	
<b>DYNAMIC CHARACTERISTICS</b>					
Current–Gain — Bandwidth Product (I <sub>C</sub> = 0.5 mA, V <sub>CE</sub> = 3.0 V, f = 100 MHz)	f <sub>T</sub>	–	100	–	MHz
(I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0 V, f = 100 MHz)		150	200	–	
Common Base Output Capacitance (V <sub>CB</sub> = 10 V, I <sub>C</sub> = 0, f = 1.0 MHz)	C <sub>ob</sub>	–	–	5.0	pF
Common Base Input Capacitance (V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = 0, f = 1.0 MHz)	C <sub>ib</sub>	–	8.0	–	pF
Small–Signal Current Gain (I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V, f = 1.0 kHz)	h <sub>fe</sub>	125	–	500	–
		125	–	260	
		240	–	500	
Noise Figure (I <sub>C</sub> = 0.2 mA, V <sub>CE</sub> = 5.0 V, R <sub>S</sub> = 2.0 kΩ, f = 1.0 kHz)	NF	–	2.0	10	dB

1. Pulse Test: T<sub>p</sub> 300 s, Duty Cycle 2.0%.

# BC182, BC182A, BC182B

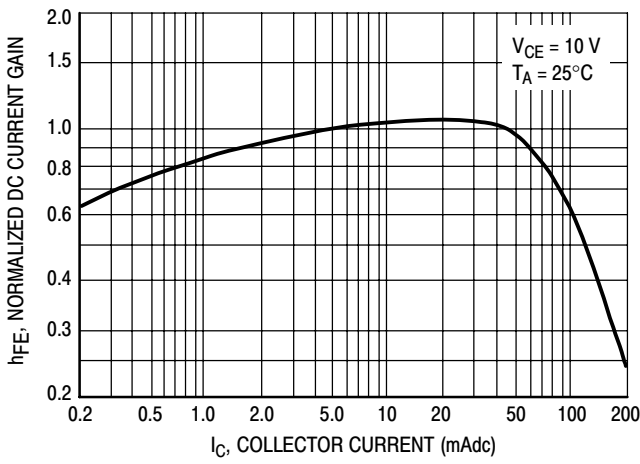


Figure 1. Normalized DC Current Gain

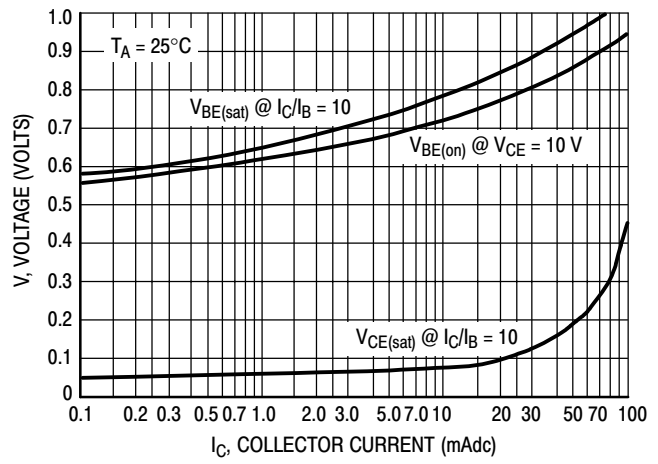


Figure 1. "Saturation" and "On" Voltages

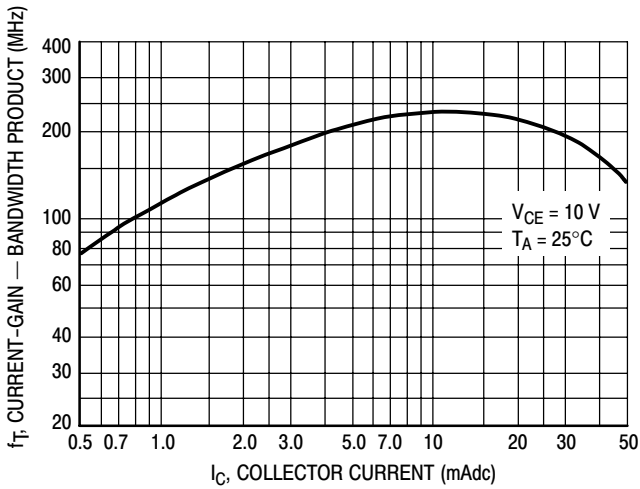


Figure 2. Current-Gain — Bandwidth Product

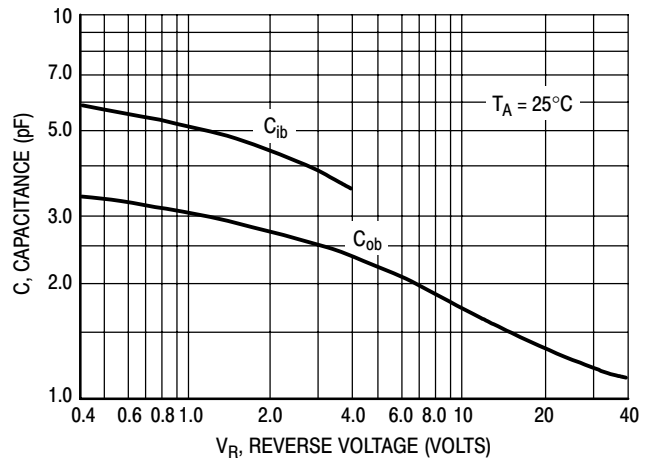


Figure 3. Capacitances

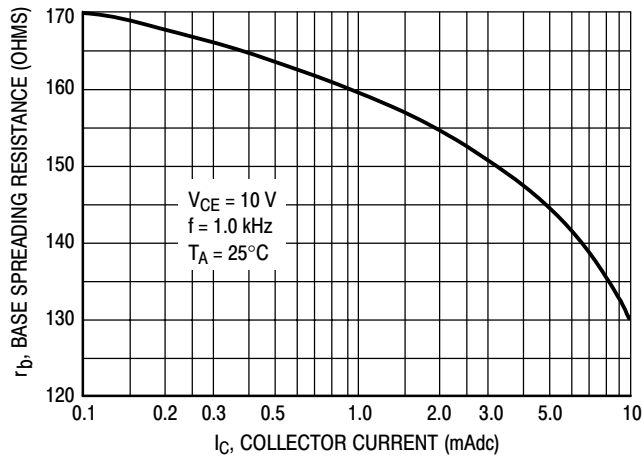
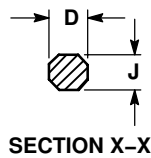
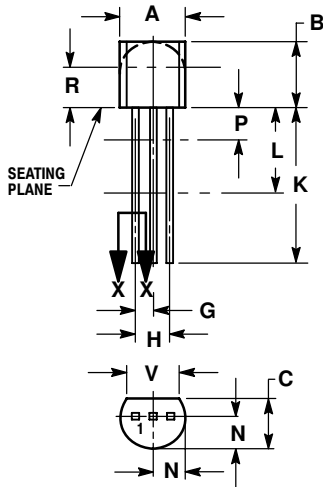


Figure 4. Base Spreading Resistance

# BC182, BC182A, BC182B

## PACKAGE DIMENSIONS

TO-92  
TO-226AA  
CASE 29-11  
ISSUE AL



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

**STYLE 17:**

1. COLLECTOR
2. BASE
3. EMITTER

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